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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,708	02/08/2005	Peter Gerell	1533-1003	6699
466 7590 10/31/2007 YOUNG & THOMPSON 745 SOUTH 23RD STREET 2ND FLOOR ARLINGTON, VA 22202			EXAMINER DENG, ANNA CHEN	
			ART UNIT 2191	PAPER NUMBER
			MAIL DATE 10/31/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/500,708	GERELL ET AL.	
	Examiner	Art Unit	
	Anna Deng	2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/2/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to Preliminary Amendment filed on 7/2/2004.
2. Claims 1, 5-8, and 12-14 have been amended.
3. Claims 1-14 are pending.

Information Disclosure Statement

4. The information disclosure statement (IDS) filed on 7/2/2004 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because the publication listed in page 2 of the IDS does not identified relevant pages of the publication. The IDS filed on 7/2/2004 has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Specification

5. The abstract of the disclosure is objected to because it contains item numbers could not match to the drawing or the specification, (i.e., sequences (7), objects (10), memory (4)). Both the abstract and the disclosure are objected to because they contain the subject matter 'NOP' (i.e., Abstract, line 7, Detailed Description, p. 6, line 11) that is unclear what is it's meaning.

Appropriate correction is required.

Claim Objections

6. Claims 1-4, 6, 8-11, and 13 are objected to because of the following informalities:
 - Claims 1-4, 6, 8-11, and 13 contain item numbers that are not clear how to relate/match in the drawing or specification (i.e., in claim 1, line 4, sequences (7), lines 5, objects (10)). Applicant is required to remove those item numbers.

- Claims 3 and 10, recite the subject matter "state preserving operation (NOP)", it is unclear to the examiner what is 'NOP' stand for.
- Claims 2-4, and 9-11 are rejected because missing identifiers. In the claim listing of amendment, the status of every claim must be indicated after its claim number by using one of the following identifiers in a parenthetical expression: (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered), see MPEP 714 (C).

Appropriate correction is required.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 8-17 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 8-14 set forth a processing system for a communications network, comprising an assembler adapted to receive a program code that is computer programs claimed as computer listings per se, i.e., the descriptions or expressions of the programs, are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F. 3d at 1583-84, 32 USPQ2d at 1035 (see 1300 OG 142142 (November 22, 2005) (in particular, see Annex IV (a)). (see MPEP 2106.01 "Computer-Related Nonstatutory Subject Matter") (in particular, see "I. FUNCTIONAL DESCRIPTIVE MATERIAL: "DATA

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STRUCTURES " REPRESENTING DESCRIPTIVE MATERIAL PER SE OR COMPUTER PROGRAMS REPRESENTING COMPUTER LISTINGS PER SE").

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1, 7-8, and 14 are rejected under 35 U.S.C. 102 (e) as being anticipated by Breslow et al. US 2007/0058656 A1 (hereinafter Breslow).

Per Claim 1 (Currently Amended):

Breslow discloses:

- **A method for a communications network, comprising the step of receiving a program code** (Breslow, [0012], "a data communication network, ...receives data packets") comprising
- **a plurality of instructions for the communications network** (Breslow, [0042], "A data packet payload may also carry, for example, network management information and instructions sent by a network administrator to one or more network entities"), wherein the method further comprises the steps of:
- **dividing the program code into a plurality of sequences (7)** (Breslow, [0041], "data messages sent through a digital data communication and other communication network are divided into one or more digital data "packets"),

- **defining, based on the program code, a plurality of relocation objects (10), each corresponding to a dependency relationship between two or more of the sequences (7)** (Breslow, [0050], "The sequence number 54 in a data packet identifies the position of the data packet in a series of data packets transmitted in a connection...The sequence number 54 assists the destination terminal in correctly reordering the data packets when they are received"), **and**
- **allocating the sequences (7) to a processor instruction memory (4)** (Breslow, [0115]-[0116], "separating the primary data packets may be accomplished by directing the received data packets into separate allocated sections of memory...While reordering may be accomplished by allocating a separate memory space and copying the primary data packets in proper order into that memory space...").

Per Claim 7 (Currently Amended):

Breslow discloses:

- **the step of linking at least one sequence, obtained by the step of dividing the program code, to a sequence, obtained by dividing another program code** ([0116], "For data packets having the same source identifier at a block 164 the destination terminal reorders the primary data packets according to their respective sequence numbers...reordering may also be accomplished by creating a linked list or other reference that readily sets forth the correct order of the primary data packets").

Per Claims 8 and 17 (Currently Amended):

These are system version of the claimed method discussed above (claims 1 and 7), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also anticipated by Breslow.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 2-6, and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breslow et al. US 2007/0058656 A1 (hereinafter Breslow), in view of Wagner, US 2003/0023388 A1 (hereinafter Wagner).

Per Claim 2:

Breslow teaches base on at least some of the sequences and at least some of the **relocation objects** (Breslow, [0041], "data messages sent through a digital data communication and other communication network are divided into one or more digital data "packets"; [0050], "The sequence number 54 in a data packet identifies the position of the data packet in a series of data packets transmitted in a connection...The sequence number 54 assists the destination terminal in correctly reordering the data packets when they are received"); Breslow does not explicitly teach **the steps of forming at least one directed graph, and determining a longest execution path through the directed graph**. However, Wagner teaches **the steps of forming at least one directed graph**, (Wagner, [0061], "a directed graph or digraph is a mathematical object consisting of nodes and directed edges. In a graph representation of a genetic network, the nodes of the graph correspond to genes, and two genes, say gene 1 and gene 2, are connected by a directed edge") and determining a longest execution path through the directed graph (Wagner, [0139]-[0142], "it can be useful to determine the longest path connecting two genes, such as for comparison to other paths or to use to determine the path ...The longest path algorithm presented herein rests on the following two propositions...").

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Breslow to include **"the steps of forming at least one directed graph, and determining a longest execution path through the directed graph"** using the teaching of Wagner. The modification would be obvious because one of ordinary skill in the art would be motivated to apply graph theory mathematics to the field of genetic networks to produce adjacency lists that describe the genetic interactions of gene networks based on gene perturbation data. (Wagner, [0006]).

Per Claim 3:

Breslow teaches the **step of entering at least one state preserving operation (NOP) in the instruction memory (4)** (Breslow, [0054], "unpacking is performed by copying the secondary data packets from the primary packet payload to an output queue implemented in memory"); Breslow does not explicitly teach **so as to make at least two execution paths equally long**. However, Wagner teaches **so as to make at least two execution paths equally long** (Wagner, [0109], "the longest possible chain of nested calls of PRUNE_ACC is (n-1) if G has n nodes. For an node l calling PRUNE_ACC, the number of nested calls is at most equal to the length of the longest path starting at l").

Per Claim 4:

The rejection of claim 3 is incorporated, and Breslow further teaches **the step of moving at least one sequence in the instruction memory (4)** (Breslow, [0115]-[0116], "separating the primary data packets may be accomplished by directing the received data packets into separate allocated sections of memory... While reordering may be accomplished by allocating a separate memory space and copying the primary data packets in proper order into that memory space...").

Per Claim 5 (Currently Amended):

Breslow teaches the **step of entering at least one state preserving operation (NOP) in the instruction memory (4)** (Breslow, [0054], "unpacking is performed by copying the secondary data

packets from the primary packet payload to an output queue implemented in memory"); Breslow does not explicitly teach **the length of the at least two execution paths correspond to the longest execution path**. However, Wagner teaches **the length of the at least two execution paths correspond to the longest execution path** (Wagner, [0142], "the longest path $p(u,w)$ between u and w , ... is equivalent to the sum over the longest paths $p(u,v)+p(v,w)$, maximized over all v from which w is accessible").

Per Claim 6 (Currently Amended):

Breslow teaches **A method for a communications network, comprising the step of receiving a program code** (Breslow, [0012], "a data communication network, ...receives data packets"), Breslow does not explicitly teach **the step of determining the existence of any circle reference by any of the relocation objects (10) between any of the sequences (7)**. However, Wagner teaches **the step of determining the existence of any circle reference by any of the relocation objects (10) between any of the sequences (7)** (Wagner, [10109]-[0110], "It contains of two loops...the longest possible chain of nested calls of PRUNE_ACC is $(n-1)$ if G has n nodes").

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Breslow to include "the step of determining the existence of any circle reference by any of the relocation objects (10) between any of the sequences (7)" using the teaching of Wagner. The modification would be obvious because one of ordinary skill in the art would be motivated to apply graph theory mathematics to the field of genetic networks to produce adjacency lists that describe the genetic interactions of gene networks based on gene perturbation data (Wagner, [0006]).

Per Claims 9-13:

These are system version of the claimed method discussed above (claims 2-6), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

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Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anna Deng whose telephone number is 571-272-5989. The examiner can normally be reached on Monday to Friday 9:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Zhen can be reached at 571 -272-3708. The fax phone number for the organization where this application or proceeding is assigned is 703-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anna Deng


WEI ZHEN
SUPERVISORY PATENT EXAMINER